Job Specific Environmental Awareness Training – Crystal Etching

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Course Objective: A significant environmental aspect is associated with crystal etching. This course has been designed to provide you with the job-specific information that you need know to protect the environment and to meet Laboratory and Government regulations for handling the waste streams produced by this operation. The contents of this training have been extracted from the NSLS PRM and BNL Subject Area.

Description of Significant Environmental Aspect: NSLS crystal etching operations utilize acids such as hydrofluoric acid, sulfuric acid and nitric acid. The acid wastes produced from the operations are RCRA hazardous wastes that need to be managed in compliance with Federal and State hazardous waste regulations.

Training Requirements: Staff members performing crystal etching are required to read this form and to take RCRA Hazardous Waste Generator training.

Operational Controls: Waste acids are to be accumulated in a designated Satellite Accumulation Area (SAA) located in the shop where the etching is performed. When the container is full, it shall be transferred to the NSLS 90-day Storage Area. Chemical wastes stored in a Satellite Accumulation Area must meet the following requirements.

- Waste containers must be closed at all times except when making additions.
- Containers must be labeled as hazardous waste and the contents of the waste identified (red labels are available in the 90-day Storage Area).
- The container must be kept in one of the SAA secondary containment trays and kept away from sinks or drains.
- Incompatible materials may not be stored in the same tray.
- Decisions about mixing must be made in consultation with the NSLS Safety Engineer.

Response to Leaks/Spills: If a spill of oil or acid occurs, take prompt action to prevent it from discharging to floor drains or sinks if you are familiar with the hazards involved and feel comfortable doing so. Any discharge to a drain, or to the outdoors, must be reported to the Lab emergency response number (x2222) and to the NSLS Control Room Operator (x2550) or member of the NSLS ES&H staff. Any indoor spill greater than five gallons shall also be reported as described.

Your Role and Responsibility: You are responsible for the proper management of your waste and to take prompt action in the event of spills. If you are ever in doubt regarding the proper course of action, contact your supervision or a member of the NSLS ESH Staff.

Potential Regulatory and Environmental Impacts: Mismanagement of waste can result in violations of RCRA hazardous waste regulations. Discharge of oils and other chemicals to drains can result in violations of BNL release limits. Both can ultimately result in contaminated soil or groundwater. BNL is subject to fines and penalties for such violations, and is responsible for the clean-up costs associated with any required remediation. BNL has also suffered poor public perception due to poor waste management practices and contamination events in the past. Proper management of waste and spills will improve our relationship with regulators and the public.

Pollution Prevention and Waste Minimization: Please offer suggestions and comments to your supervision about pollution prevention and waste minimization. Disposal of hazardous waste is costly and time consuming. Please make every effort to minimize the quantity of chemicals you bring to the NSLS and the quantity of waste materials generated.

Print Name	Sign Name	Life Number	Date

Signature conveys that you have read and understand this information.

NSLS Environmental Management Training

Background Environmental and hazardous waste management regulations are among the most sensitive and visible issues in the American society. At BNL, these regulations are indisputably the most sensitive topic within the ESH arena since environmental releases and the perception of poor waste handling practices were at the heart of the AUI discharge by DOE and in the development of the strong management emphasis on these issues. In light of the high visibility and sensitivity to these issues, BNL management committed to the development of an Environmental Management Program that met all the requirements of ISO 14001, an international organization which has adopted standards for many types of programs, including environmental management.

A key issue within ISO 14001 is the identification of all activities at a facility that are associated with significant environmental aspects. All activities involving a significant aspect are to be managed and controlled to ensure that no adverse environmental impact results. As a part of that program, all personnel whose work involves a significant environmental aspect[1] will be provided specific environmental awareness training relating to their duties.

There are several work activities at NSLS that are involved with our facilities' significant environmental aspects. These activities are:

- Regeneration of process water mixed bed deionizing and Cooling Water System Maintenance
- Machine shop operations
- Photographic dark room operations
- Vacuum pump maintenance
- Electrical/mechanical assembly
- Experimental Program
- 90 Day/Satellite Area Operation
- Silicon Crystal Etching

For each of these activities, job specific training has been developed to ensure knowledge of applicable requirements that should be followed to properly control the significant environmental aspect.

[1] Significant environmental aspects have been defined at BNL as involving any of the following issues:

- Generation of any amount of industrial, hazardous, radioactive, mixed, or medical wastes
- Air or liquid effluents or emissions exceeding defined values
- Storage or use of chemicals or radioactive material above certain thresholds